

REMARKS/ARGUMENTS

Reexamination and reconsideration of this application as amended is requested. The claims have not been amended by this amendment. Claims 1-17 remain in the application.

REJECTION OF CLAIMS 1-17 UNDER 35 U.S.C. §102

Claims 1-17 have been rejected under 35 U.S.C. 102 as being anticipated by Bostaph et al., WO 02/49132 A2.

The cited Bostaph reference discloses a fuel cell wherein a water/methanol mixture 46 from the anode is recirculated through channel 53 to the mixing chamber 36.

The present invention takes air from the cathode side of the fuel cell and inserts it into the mixing chamber. The air from the cathode is much more turbulent and has a higher flow rate than that taken from the anode. Therefore, the air from the cathode provides a much improved mixing of the fuel in the mixing chamber.

The examiner has stated 'Although the reference does not state "a return air/water line from a cathode", the air would return along with the water from the cathode side of the fuel cell.' Applicant respectfully disagrees. While the examiner is correct in that, on page 16, lines 2-6, that "water may be recovered by the cathode...and is recirculated through recirculating channel 53 back to the mixing chamber 36"; however, please note in the preceding sentence it states

"During operation spent fluid is exhausted through the exhaust channel toward a carbon dioxide separation chamber and carbon dioxide vent, generally referenced 44."

Please note further, at page 10, lines 9-15, it is stated

"During operation, exhaust products are separated in a carbon dioxide separation chamber 44 into the water/methanol mixture 46 and a carbon dioxide gas 48. Next, gas 48 is expelled through an exhaust outlet 52, such as a gas permeable membrane and water/methanol mixture 46 is recirculated through a recirculating channel 53...".

Therefore, the gas and liquid are separated and the gas is vented away from the fuel cell. It is not returned to the mixing chamber. The reference only teaches recovering water from the cathode side, not a water/air mixture.

Note in the cited reference, that if the gas were returned, there is no vent in the mixing chamber 36. Pressure would build up and cause imbalance in the system. Those skilled in the technology would know this is neither desirable nor possible as it would shut the system down.

The independent claims 1, 7, and 16 as previously amended, state that a return/bubbling line return air/gas from the cathode to the mixing chamber. As just discussed, this is not taught by the Bostaph reference, nor would it be obvious to one skilled in the art to use the cathode air instead of the anode air. The dependent claims are believed allowable since they depend from what is believed to be an allowable claim, and further for the limitations they add.

Accordingly, it is believed that the rejection of claims 1-17 under 35 U.S.C. 102 has been overcome by the amendment and remarks.

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CONCLUSION

No amendment made herein was related to the statutory requirements of patentability unless expressly stated; and no amendment made herein was for the purpose of narrowing the scope of any claim, unless Applicant has argued herein that such amendment was made to distinguish over a particular reference or combination of references.

In view of Applicant's amendments and remarks, it is respectfully submitted that Examiner's rejections have been overcome. Accordingly, Applicants respectfully submit that the application, as amended, is now in condition for allowance, and such allowance is therefore earnestly requested. Should the Examiner have any questions or wish to further discuss this application, Applicants request that the Examiner contact the Applicants attorneys at 480-385-5060.


If for some reason Applicants have not requested a sufficient extension and/or have not paid a sufficient fee for this response and/or for the extension necessary to prevent abandonment on this application, please consider this as a request for an extension for the required time period and/or authorization to charge Deposit Account No. 502,091 for any fee which may be due.

Respectfully submitted,

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